

Wakabayashi is specifically directed towards vinyl resins having a hydrolyzable silyl group at an end of the main chain. Although he mentions “organic” polymers towards the bottom of column 2, and gives some examples beyond vinyl, all the rest of the disclosure concerns vinyl resins and only vinyl resins!

These resins are said to have the excellent properties of vinyl resins, such as high gloss, weatherability and discoloring resistance, but also an improved adhesive property to inorganic materials, due to the hydrolyzable silyl group(s).

In other words, Wakabayashi wants to retain the desirable properties of vinyl resins, while also obtaining good adhesion!

Wakabayashi points out that when these resins are crosslinked, they have excellent properties, such as high chemical resistance, water resistance, heat stability, hardness and weatherability.

Wakabayashi’s main concern is that, when his resins are blended with a curing agent, the blended compositions have a short pot life.

The entire thrust of Wakabayashi is to enable the continued use of the vinyl resins, but to improve their pot life. This is done through the use of a special kind of curing catalyst and a phosphoric acid compound. (Note the Certificate of Correction...the substituent on the phosphoric acid radical in col. 2 is -OH, not -H).

Wakabayashi's special catalyst is an organozirconium compound. Applicants' claims recite preferred catalysts are organo tin and organo titanium.

At column 9, lines 34-38, Wakabayashi teaches that pot life can be further improved by adding a hydroxyalkoxy ester, such as methyl triethoxy silane, et cetera.

In the paragraph bridging columns. 9 and 10, Wakabayashi teaches that various fillers and pigments can be added.

Wakabayashi therefore does not appear to be at all concerned with modulus of elasticity or high elongation at break, and does not even recognize that the addition of fillers can affect these properties. To the contrary, this reference appears to be heading in an opposite direction, i.e., how to maintain the hardness and high gloss of the vinyl resins, without premature crosslinking.

From this, it is clear that there is no way in the world that Wakabayashi would have any interest in a silicone resin. Silicone resins, especially those used in RTV compositions are known to be soft, elastic and of low gloss. The silicone RTV's result in a rubber. Wakabayashi is not interested in rubbers. It would make absolutely no sense for Wakabayashi to substitute any silicone for his beloved vinyl resin! Moreover, it would make no sense for anyone reading Wakabayashi to refer to Kimura, because Kimura deals with rubbers, which would seem to be the opposite of what Wakabayashi wants.

Kimura, on the other hand, is concerned with finding a way to achieve "deep curing" of curable RTV rubber compounds, whether based on silicone or polyoxyalkylene. The RTV's are cured upon exposure to water (generally in the atmosphere). The problem is, the RTV's cure first at the surface, and then no water can penetrate to the interior of the rubber, so the inner part cures much more slowly, if at all.

Kimura solves this problem by incorporating additives which react to generate water within the bulk of the composition itself. Therefore, water does not have to penetrate the surface skin, it is already generated on the interior.

Kimura does this by mixing his curable polymers with

a) a carbonyl compound,

b) an organic compound having at least one NH_2 group in the molecule,
and

c) an organic compound having at least one α,β -unsaturated carbonyl group in the molecule.

So, Kimura would not be too interested in anything that could be learned from Wakabayashi, because there is nothing there that would help solve his deep curing problem.

On the other hand, Wakabayashi would not want a silicone in the first place, as discussed above. Even if he was interested in a silicone, Kimura's discussion of deep curing problems would discourage him. Kimura's lessons would not be applicable to Wakabayashi, because one would expect that Kimura's a), b), & c) would react with e.g., the silanes of Wakabayashi and produce an undesired result.

Accordingly, there is no basis for taking Kimura's silicone over to Wakabayashi, and even if it were proposed, no one would want to do it...it makes no sense.

Accordingly, Applicants' claims cannot fairly be seen as obvious over Wakabayashi in view of Kimura, and the rejection of claims 1 - 6, 8 - 10 and 13 under 35 USC 103(a) as obvious over said references should now be withdrawn.

Claims 1 - 6, 8 - 10 and 13 stand rejected under 35 USC 103(a) as obvious over Schiller et al. in view of Sattlegger.

The Schiller et al. disclosure, including example 5, is concerned with so-called amine or amine/oxime silicone sealant formulations. Sealants of this type cure under the influence of atmospheric moisture with release of amines or amines and oximes. This fact is important for the distinction from other generic types of silicone sealants. One objective of the present invention is the production of sealants which do not release strongly smelling and corrosive by-products. They are so-called alkoxy sealants which are characterized by the application of alkoxysilane crosslinkers. This type of sealants generates volatile alcohols like methanol or ethanol during cure. Optionally aminoalkylalkoxysilanes can be used in the alkoxy sealant formulations. They are frequently used as adhesion promoters, which hydrolyze at the Si-OC moiety under the influence of moisture. Thus, they are incorporated into the rubber network in the course of the curing process. A typical example is the silane

$\text{H}_2\text{NCH}_2\text{CH}_2\text{NHCH}_2\text{CH}_2\text{CH}_2\text{Si}(\text{OCH}_3)_3$. The characteristic aminosilanes of the Schiller disclosure are cleaved along the Si-N bond during cure. They serve as crosslinkers in a similar way as the alkoxysilanes in alkoxy sealants.

The different generic types of sealants expose the producer to specific problems. Amine and amine/oxime systems and alkoxy systems may both have shelf life problems, but they are different in nature. The amine or amine/oxime sealants tend to lose the desired rheological properties. They tend to become sagging or even flowable and cannot be used for joint filling after prolonged storage. No problem of this kind is known for alkoxy sealants. Alkoxy sealants frequently suffer from a loss of curing properties after storage, even in well-sealed containers. Therefore, the most critical requirement for an alkoxy sealant is to have well-curing products even after prolonged storage of the uncured sealants. The Schiller disclosure is not related to this kind of shelf life problem, since the curing properties of amine or amine/oxime sealants usually do not change much during aging on the shelf.

While Applicants do not know exactly what would happen if alkoxy silanes were added to a formulation according to example 5 in the Schiller disclosure, one would expect that the shelf life of the formulation with respect to its ability to cure would be severely imparted by adding an alkoxy silane, e.g. methyltrimethoxysilane.

Accordingly, Schiller and Sattlegger would never be combined by those skilled in the art. Even if they were, this would never lead to the present invention. The rejection of claims 1 - 6, 8 - 10 and 13 under 35 USC 103(a) as obvious over Schiller in view of Sattlegger should now be withdrawn.

With respect to the term "optionally substituted" in Applicants' claims, Applicants would respectfully point out that those skilled in the art to which this invention pertains would be well-aware of the substituents that could be used on the R¹, R² and R³ groups.

In view of the present amendments and remarks, it is believed that claims 1 - 6, 8 - 10 and 13 are now in condition for allowance. Reconsideration of said claims by the Examiner is respectfully requested and the allowance thereof is courteously solicited.

CONDITIONAL PETITION FOR EXTENSION OF TIME

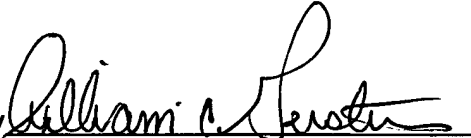
If any extension of time for this response is required, Applicants request that this be considered a petition therefor. Please charge the required petition fee to Deposit Account No. 19-3869.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account
No. 19-3869.

Respectfully submitted,

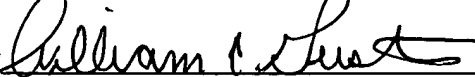
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I hereby certify that this correspondence is being deposited with the United States
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By 

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